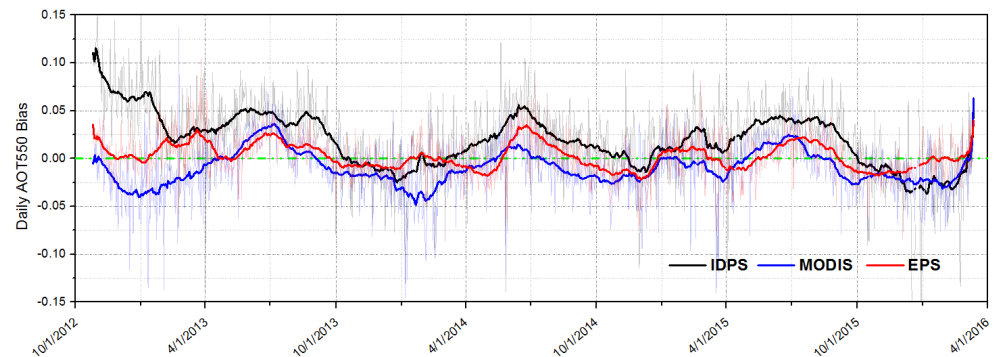
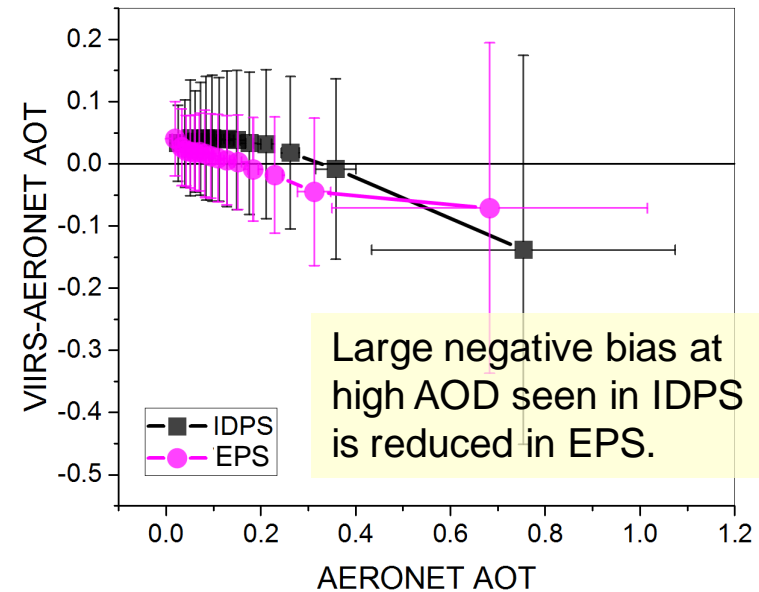


S-NPP AOT Product Overview (1)

| AOT - Land | L1RDS | Performance |
|---------------------------|-------|-------------|
| AOT550 < 0.1 | | |
| Accuracy | 0.06 | 0.03 |
| Precision | 0.15 | 0.07 |
| 0.1 ≤ AOT550 ≤ 0.8 | | |
| Accuracy | 0.05 | -0.01 |
| Precision | 0.25 | 0.11 |
| AOT550 > 0.8 | | |
| Accuracy | 0.20 | -0.05 |
| Precision | 0.45 | 0.38 |

| AOT - Water | L1RDS | Performance |
|------------------------|-------|-------------|
| AOT550 < 0.3 | | |
| Accuracy | 0.08 | 0.03 |
| Precision | 0.15 | 0.04 |
| AOT550 ≥ 0.3 | | |
| Accuracy | 0.15 | 0.01 |
| Precision | 0.35 | 0.11 |



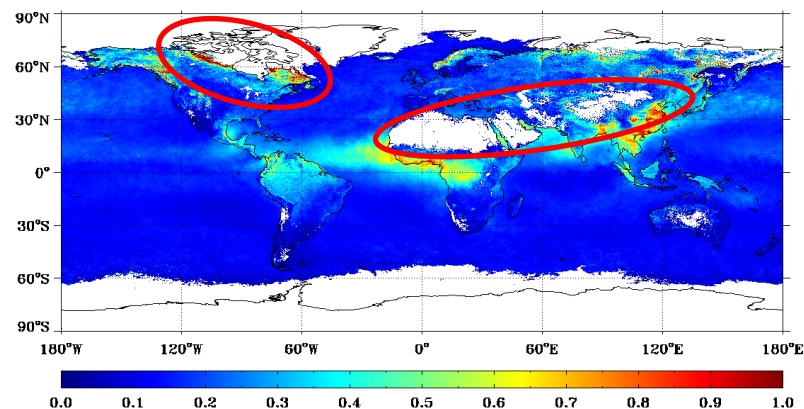
IDPS: Interface Data Processing Segment (current operational system)
 EPS: Enterprise Processing System for NOAA Data Exploitation (NDE) operational system

S-NPP AOT Product Overview (2)

- **Enterprise AOT Algorithm Status:**
 - Algorithm is ready
 - Scheduled for operational implementation in Spring 2017
- **Reprocessing:**
 - with EPS algorithm
 - 2015 completed
 - Output Data
 - Pixel-level retrieval and diagnostic outputs in compressed HDF5 format for each granule
 - Total size 7.7T (about 22G per day)
 - Provided data to users at
 - NOAA Earth System Research Laboratory (ESRL)
 - NOAA Joint Center for Satellite Data Assimilation (JCSDA);
 - NOAA National Centers for Environmental Prediction (NCEP) Environmental Modeling Center (EMC)
 - University at Albany, State University of New York
 - Naval Research Laboratory (NRL)

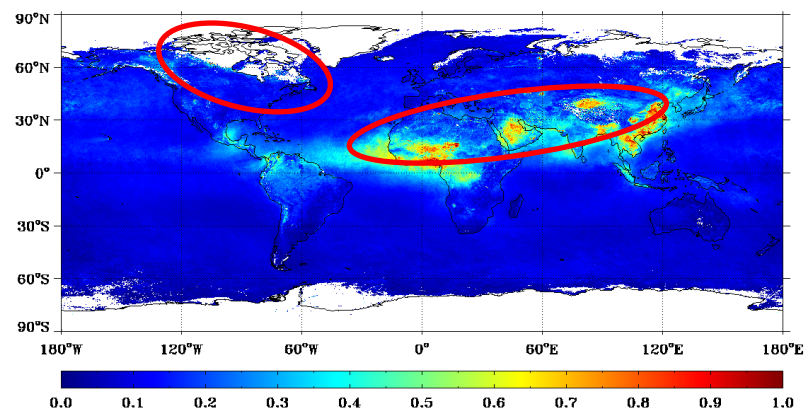
IDPS

2015 Spring (MAM) VIIRS (IDPS) High Quality AOD550



EPS

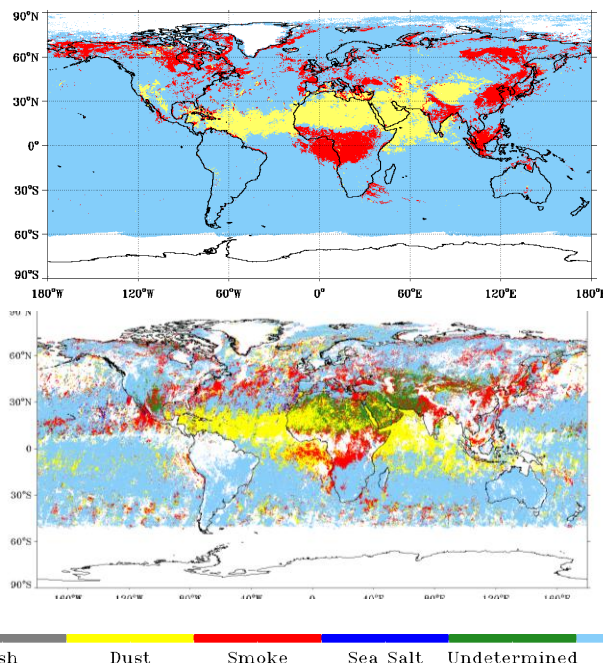
2015 Spring (MAM) VIIRS (EPS) High Quality AOD550



S-NPP Aerosol Detection Product (ADP) Product Overview

| Product | L1RDS | Performance | |
|---------------------|-------|-------------|-------|
| | | Land | Water |
| Accuracy (%) | | | |
| Smoke | 70 | 98 | 94 |
| Dust | 80 | 84 | 95 |
| Ash | 60 | | |

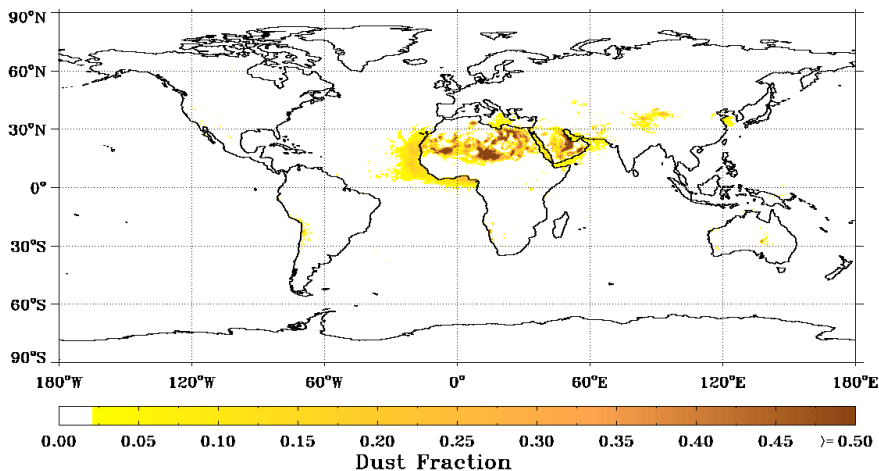
Both dust and smoke products meet requirements



VIIRS aerosol detection product (top) is in good agreement with MISR (bottom) with respect to location of dust and smoke.

SNPP VIIRS Dust Climatology 2013 - 2015

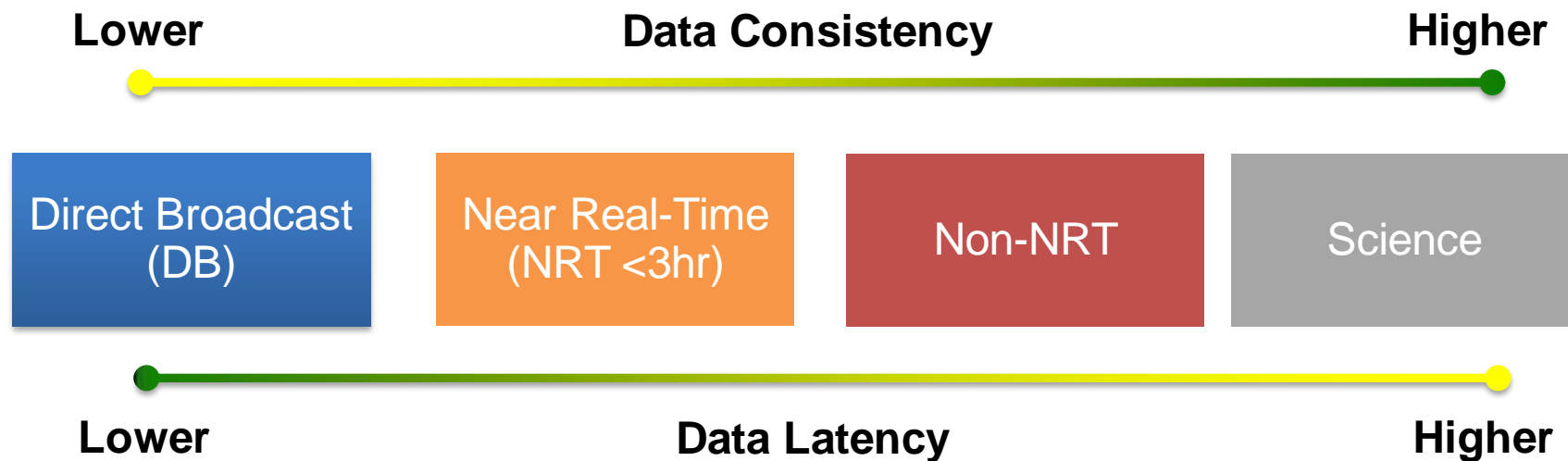
January



- **Enterprise ADP Algorithm Status:**
 - Algorithm is ready
 - Scheduled for implementation in NDE in Spring 2017
- **Reprocessing:**
 - with EPS algorithm
 - 2015 completed; other years ongoing

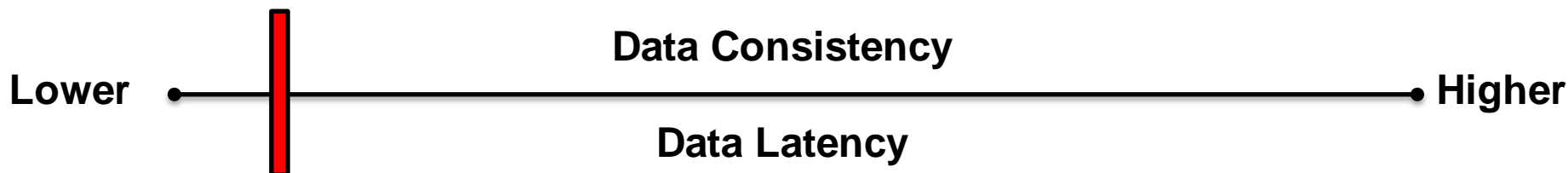
VIIRS Aerosol Product Options

- Trade-off between latency and consistency of data products
- Need to know what general type of product you need (4 categories)
- Many places to find data! (details on following slides)



VIIRS Aerosol Products

Sources: DB



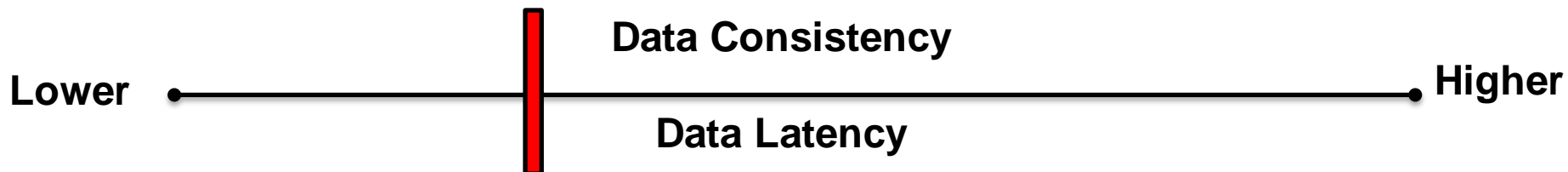
Direct Broadcast
(DB)

Direct Broadcast (DB) is the real-time transmission of satellite data to the ground. As the Earth is being observed by satellite instruments the data are formatted and transmitted to any users who have compatible ground receiving equipment and are in direct line of sight to the satellite. DB can provide end-users with VIIRS data in less than 1 hour.

For CONUS and Alaska, data can be obtained from:

ftp://ftp.star.nesdis.noaa.gov/pub/smcd/hzhang/VIIRS_NRT/

VIIRS Aerosol Product Sources: NRT



Near Real-Time
(NRT <3hr)

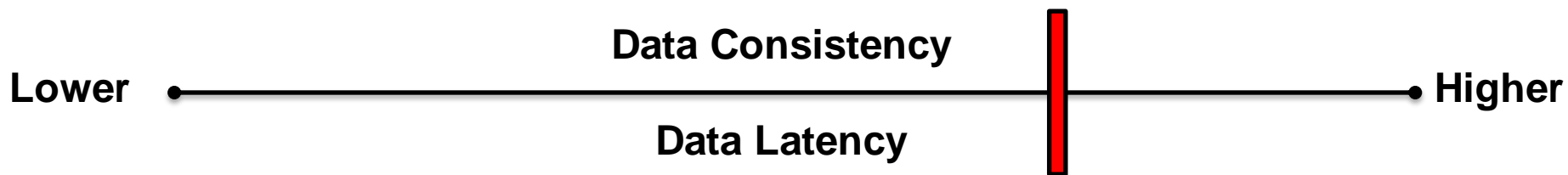
Near Real-Time (NRT) data and imagery from VIIRS instrument are available much quicker than routine processing allows. Most data products are available within 3 hours from satellite while imagery are generally available 3-5 hours after observation.

Must fill out the Data Access Request Form to NOAA-NESDIS to get a subscription

<http://www.ospo.noaa.gov/Organization/About/access.html>

VIIRS Aerosol Products

Sources: Non-NRT



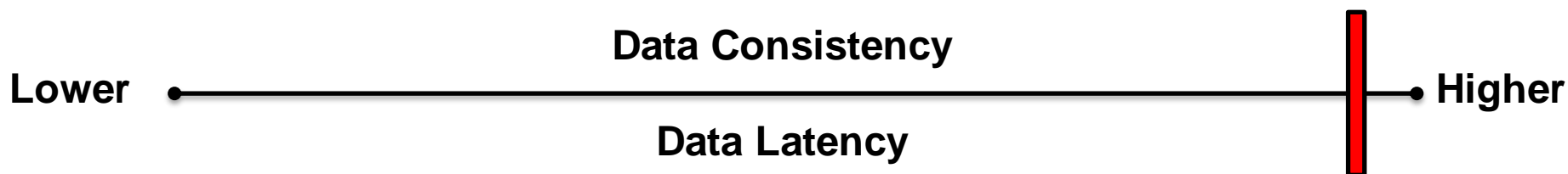
Non-NRT

This is the standard processing stream for SNPP and VIIRS products. Latency is around 6 hours.

<http://www.nsop.class.noaa.gov/saa/products/welcome>

VIIRS Aerosol Products

Product Sources: Science



Science

Science quality data have undergone quality checks and been scrutinized before being archived. The data are periodically reprocessed to include algorithm updates. Latency is months to years depending on versions of reprocessing.

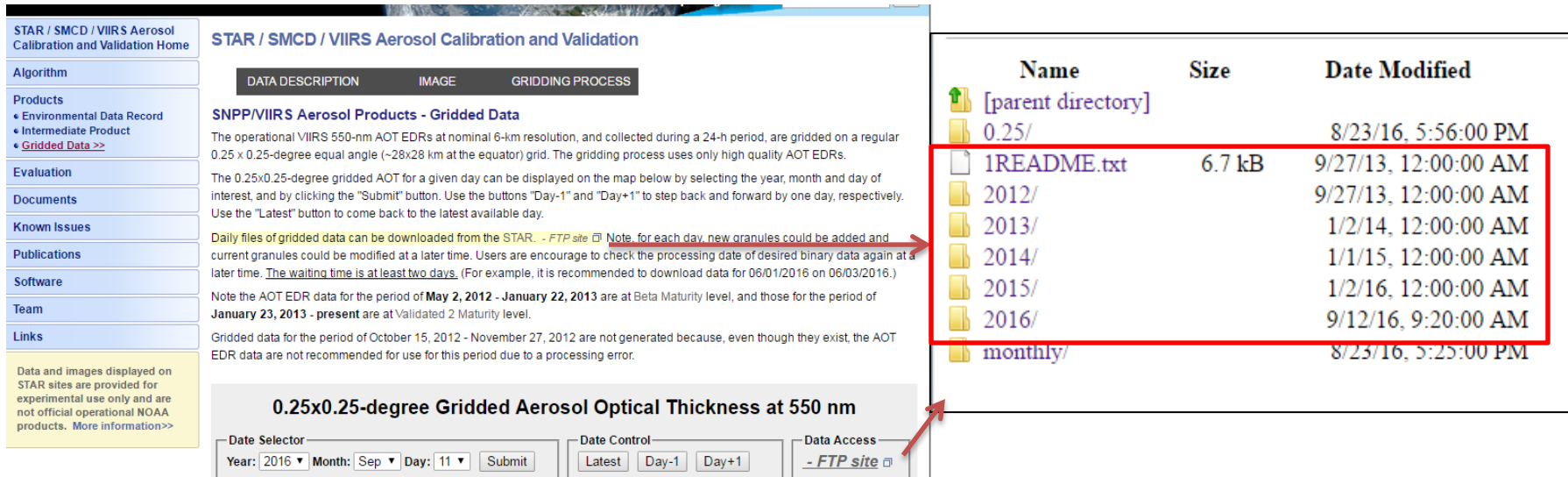
Data access by sending a request to
Shobha.Kondragunta@noaa.gov or
Istvan.Laszlo@noaa.gov

VIIRS Aerosol Product

Source: Gridded Data

- Gridded Data on STAR Aerosol Cal/Val website:

http://www.star.nesdis.noaa.gov/smcd/emb/viirs_aerosol/products_gridded.php



STAR / SMCD / VIIRS Aerosol Calibration and Validation

DATA DESCRIPTION **IMAGE** **GRIDDING PROCESS**

SNPP/VIIRS Aerosol Products - Gridded Data

The operational VIIRS 550-nm AOT EDRs at nominal 6-km resolution, and collected during a 24-h period, are gridded on a regular 0.25 x 0.25-degree equal angle (~28x28 km at the equator) grid. The gridding process uses only high quality AOT EDRs.

The 0.25x0.25-degree gridded AOT for a given day can be displayed on the map below by selecting the year, month and day of interest, and by clicking the "Submit" button. Use the buttons "Day-1" and "Day+1" to step back and forward by one day, respectively. Use the "Latest" button to come back to the latest available day.

Daily files of gridded data can be downloaded from the STAR. - [FTP site](#) Note, for each day, new granules could be added and current granules could be modified at a later time. Users are encourage to check the processing date of desired binary data again at a later time. The waiting time is at least two days. (For example, it is recommended to download data for 06/01/2016 on 06/03/2016.)

Note the AOT EDR data for the period of **May 2, 2012 - January 22, 2013** are at Beta Maturity level, and those for the period of **January 23, 2013 - present** are at Validated 2 Maturity level.

Gridded data for the period of October 15, 2012 - November 27, 2012 are not generated because, even though they exist, the AOT EDR data are not recommended for use for this period due to a processing error.

0.25x0.25-degree Gridded Aerosol Optical Thickness at 550 nm

Date Selector
Year: 2016 Month: Sep Day: 11 Submit

Date Control
Latest Day-1 Day+1

Data Access
- [FTP site](#)

| Name | Size | Date Modified |
|--------------------|--------|----------------------|
| [parent directory] | | |
| 0.25/ | | 8/23/16, 5:56:00 PM |
| 1README.txt | 6.7 kB | 9/27/13, 12:00:00 AM |
| 2012/ | | 9/27/13, 12:00:00 AM |
| 2013/ | | 1/2/14, 12:00:00 AM |
| 2014/ | | 1/1/15, 12:00:00 AM |
| 2015/ | | 1/2/16, 12:00:00 AM |
| 2016/ | | 9/12/16, 9:20:00 AM |
| monthly/ | | 8/23/16, 5:25:00 PM |

- Daily gridded EPS AOT from 2015 also available via ftp site